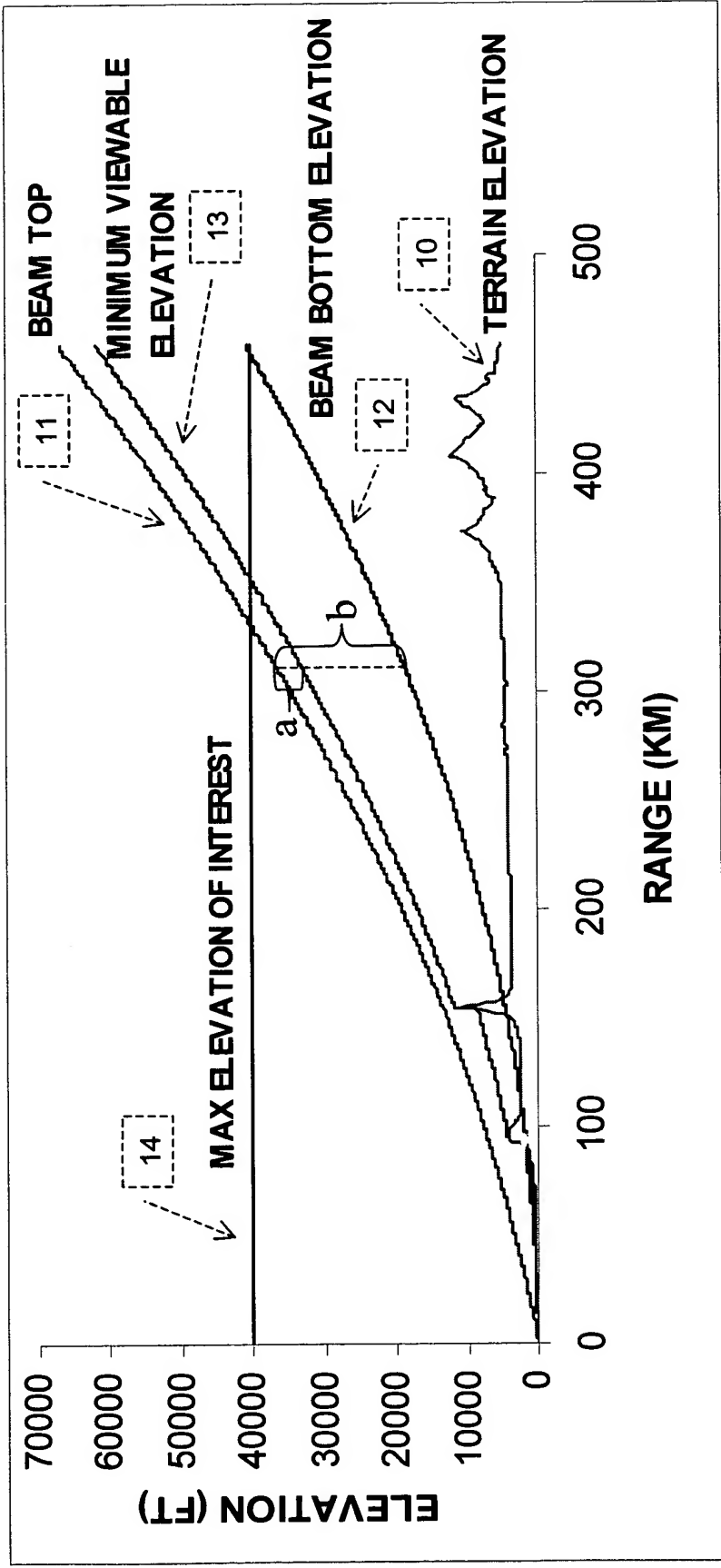Figure 1 – Terrain Elevation Data for Albuquerque WSR-88D Radar

Radar Coverage = (a/b) * 100%
Radar Blockage = (1 – a/b) * 100%

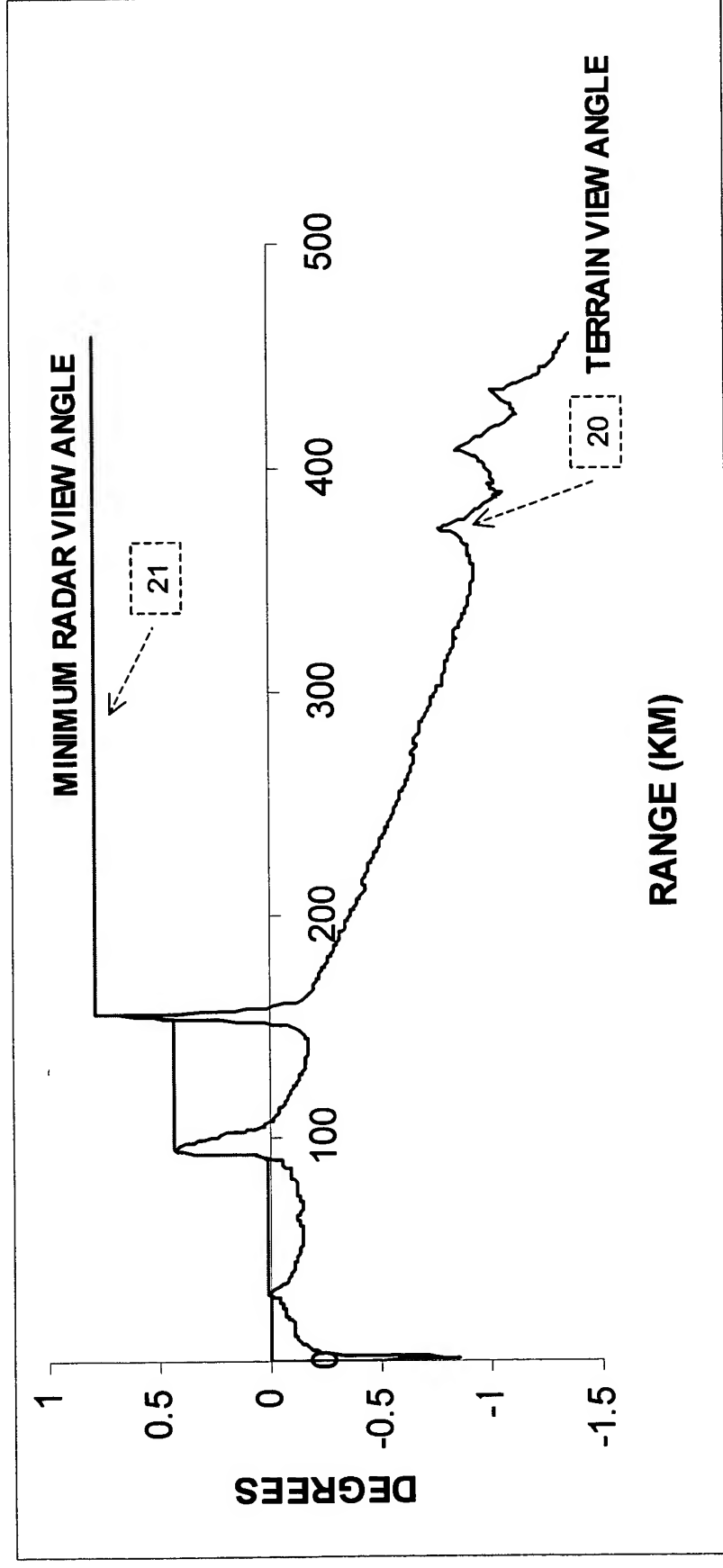Figure 2 – Radar Coverage Map Model for Single Tilt Radar Products
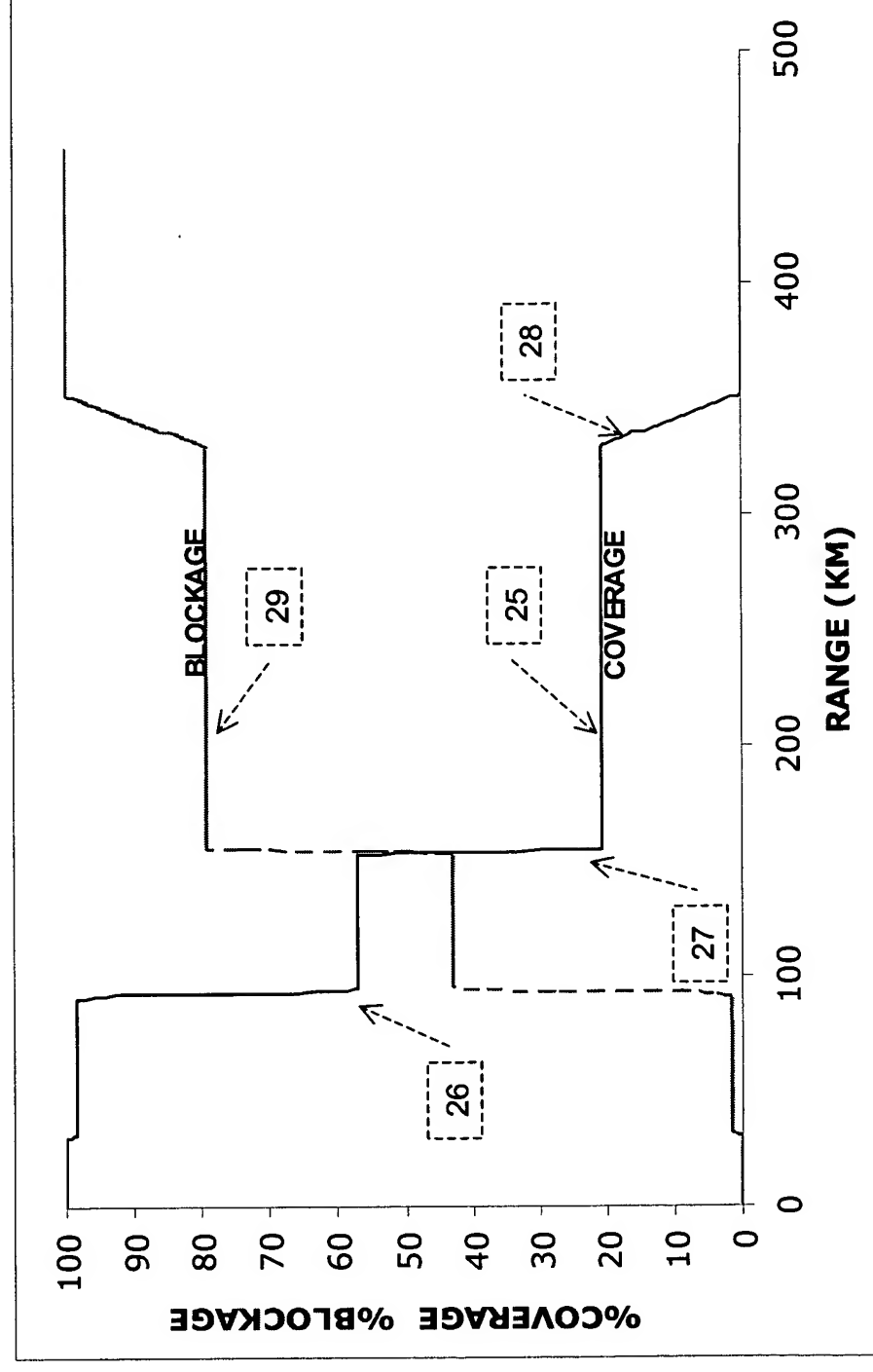
Figure 3 – Minimum Radar View Angle

Figure 4 – Example of Radial Radar Coverage and Blockage Profiles for a Single Tilt Radar Product
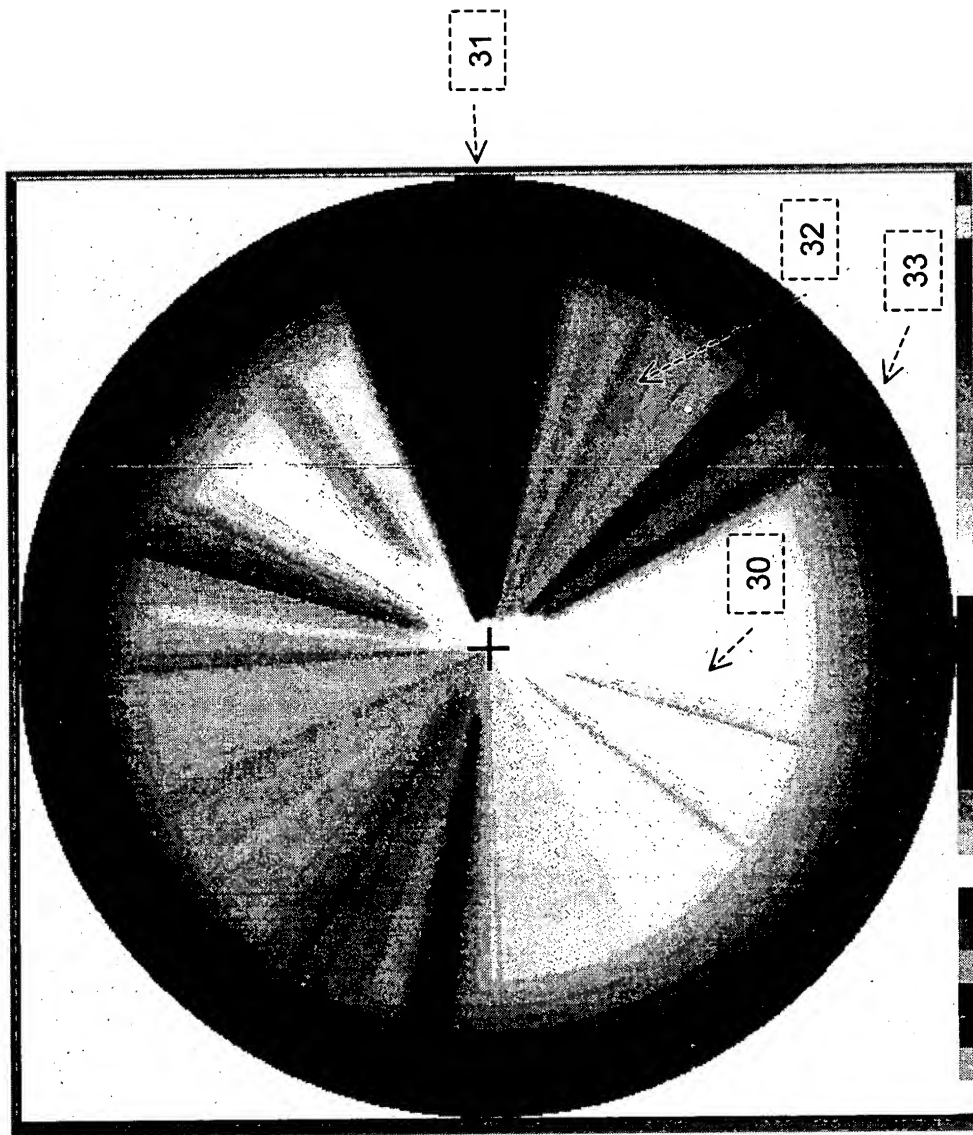
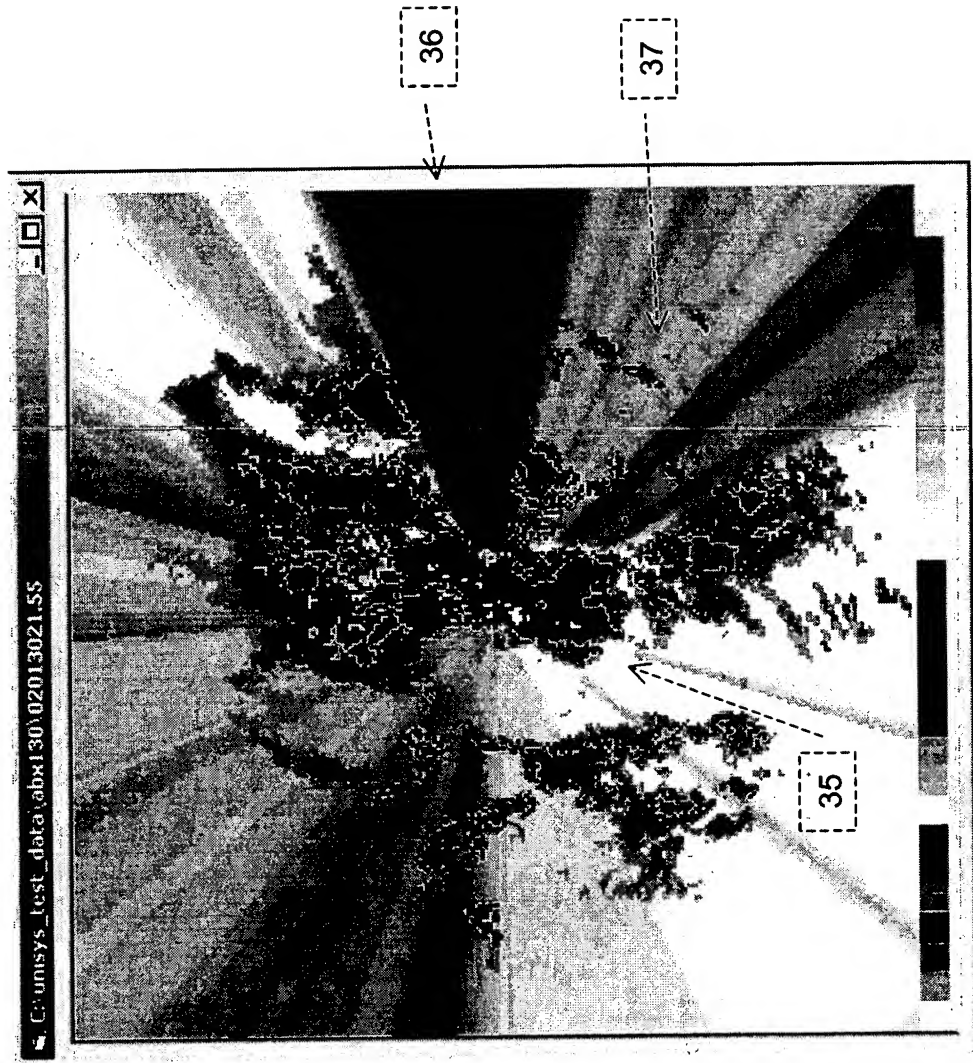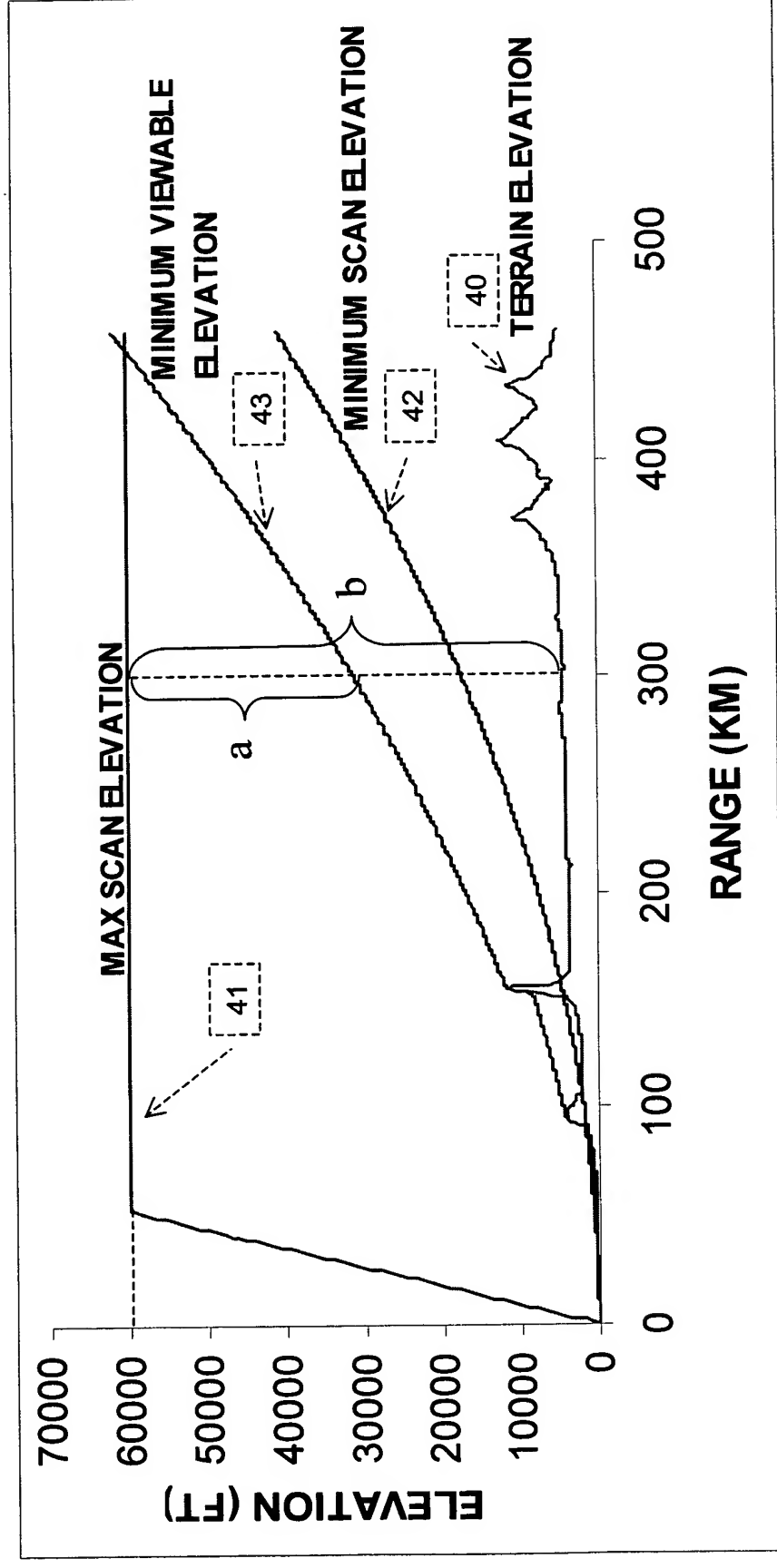Figure 5 – Tilt 1 Radar Coverage Map for Albuquerque WSR-88D radar

Figure 6 – Tilt 1 Reflectivity Product Overlaid on Albuquerque Radar Coverage Map

Radar Coverage = (a/b) * 100%
Radar Blockage = (1 – a/b) * 100%

Figure 7 - Radar Coverage Map Model for Layer Radar Products

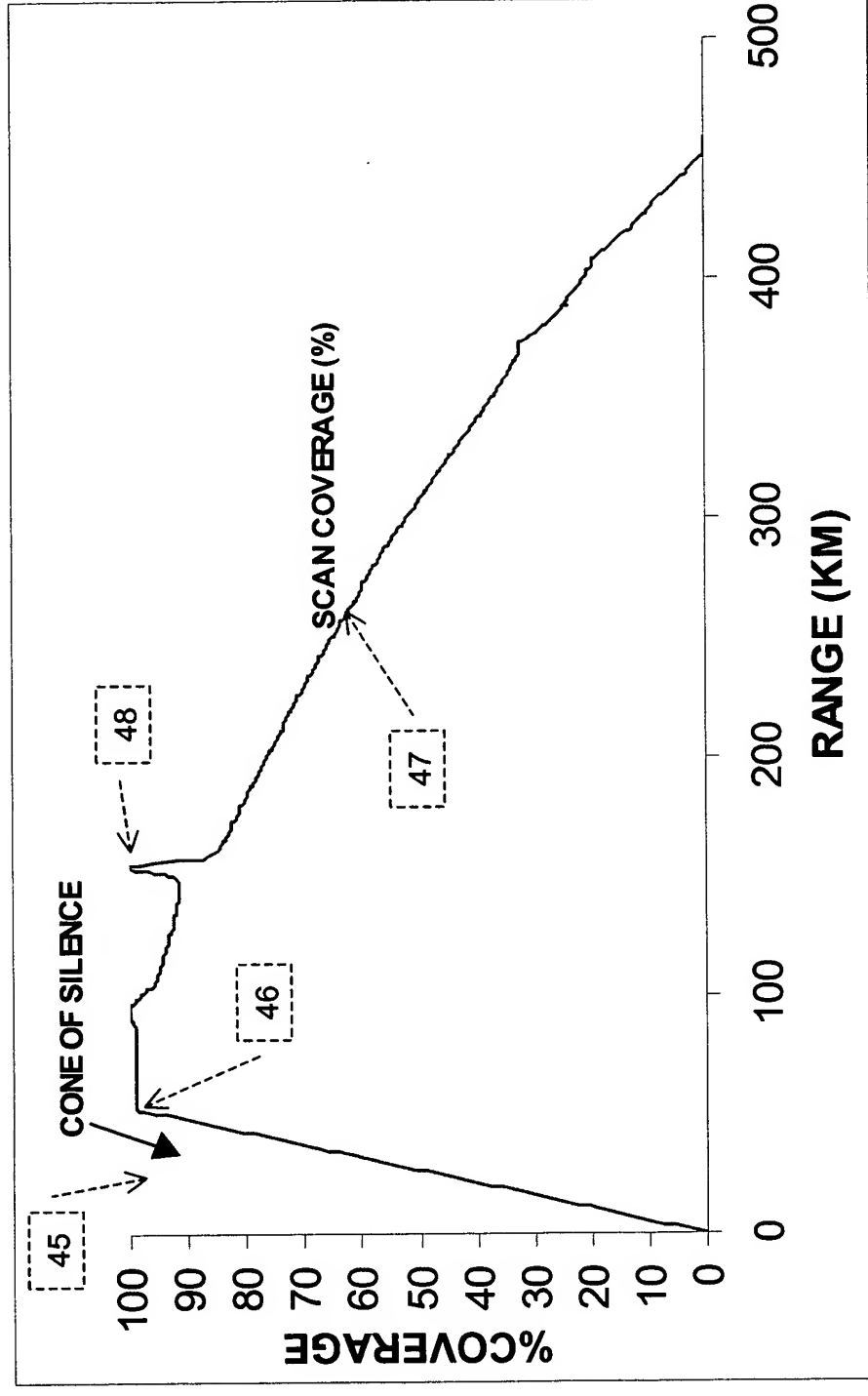Figure 8 - Example of a Radial Radar Coverage Profile for a Layer Radar Product

50

51

52a

52
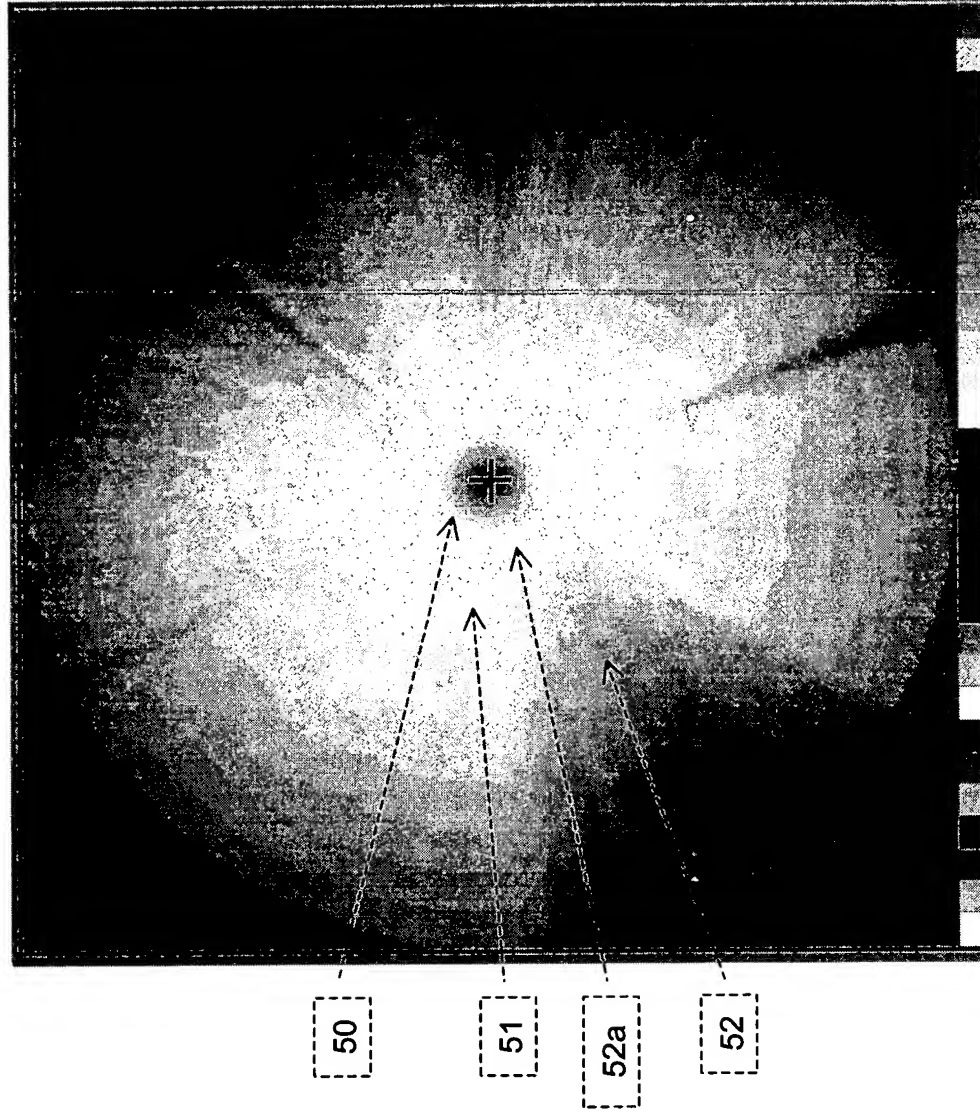
Figure 9 - Radar Coverage Map for
Composite Reflectivity Product for
Seattle WSR-88D radar
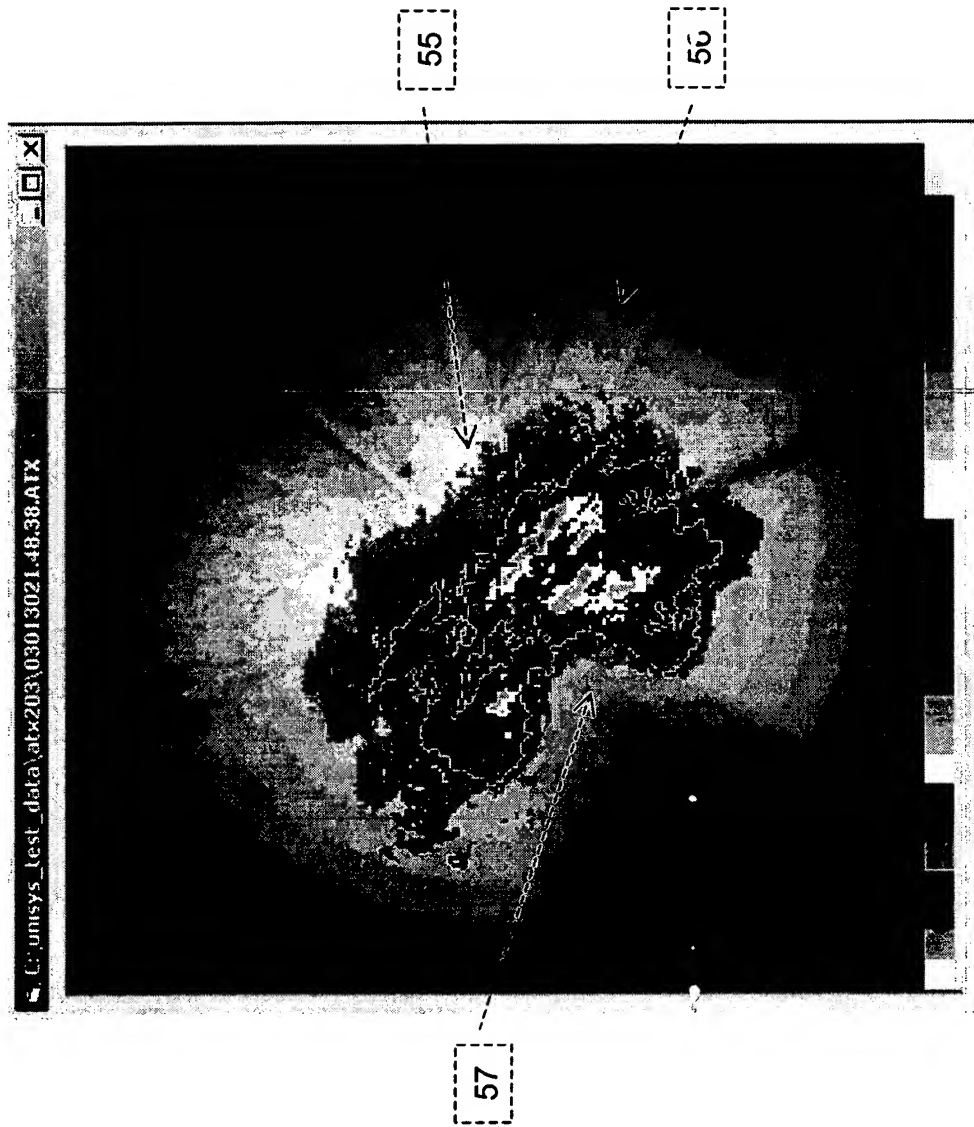
Figure 10 – Composite Reflectivity Product
Overlaid on Seattle Radar Coverage Map
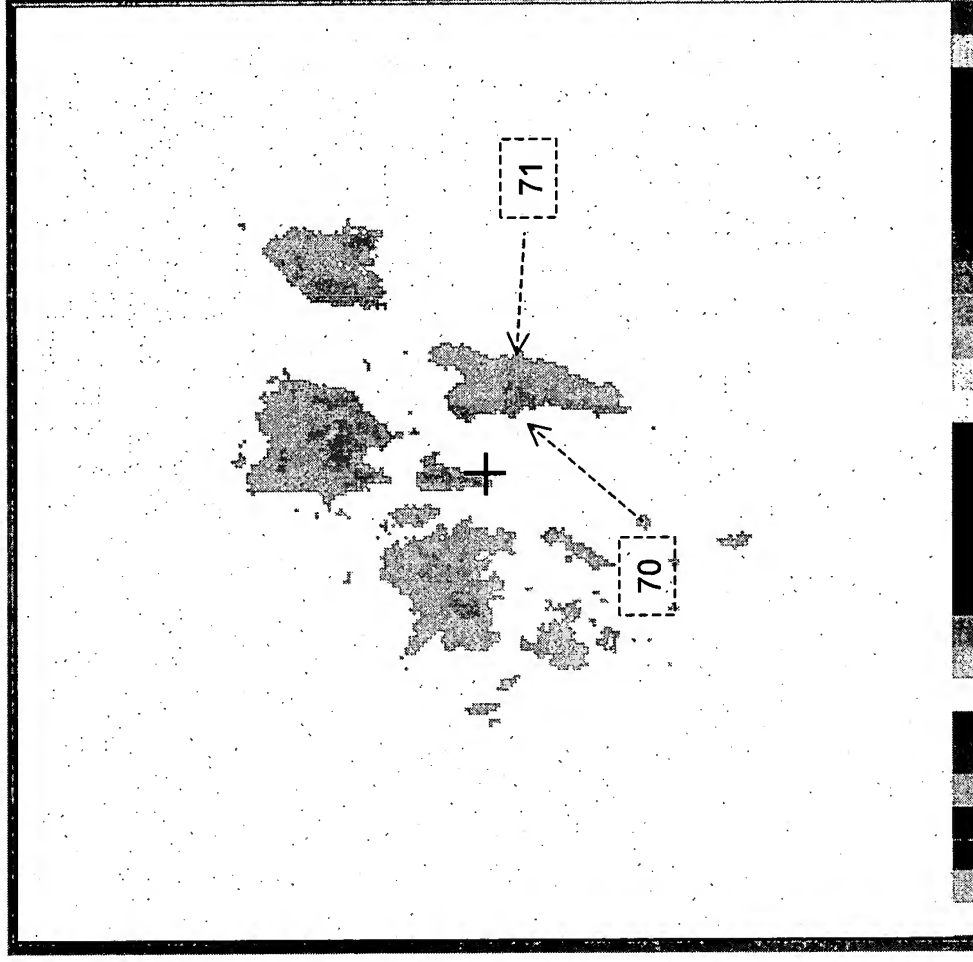
Figure 13 - Radar Clutter Region Map for Albuquerque WSR-88D radar

Figure 14 - Reflectivity Product Overlaid on
Albuquerque Radar Clutter Region Map

80

81

82
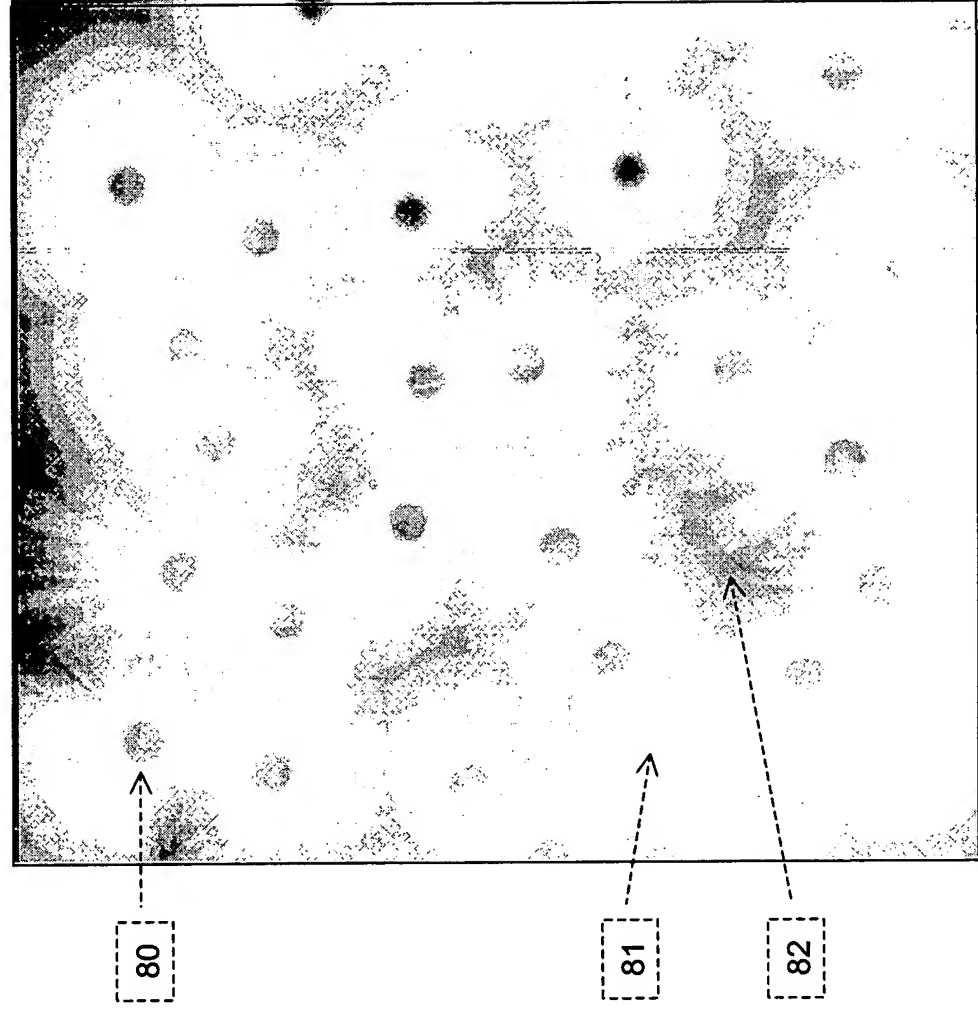
Figure 15 – Radar Coverage Map for Composite
Reflectivity Mosaic Product for
NW CONUS WSR-88D Radars
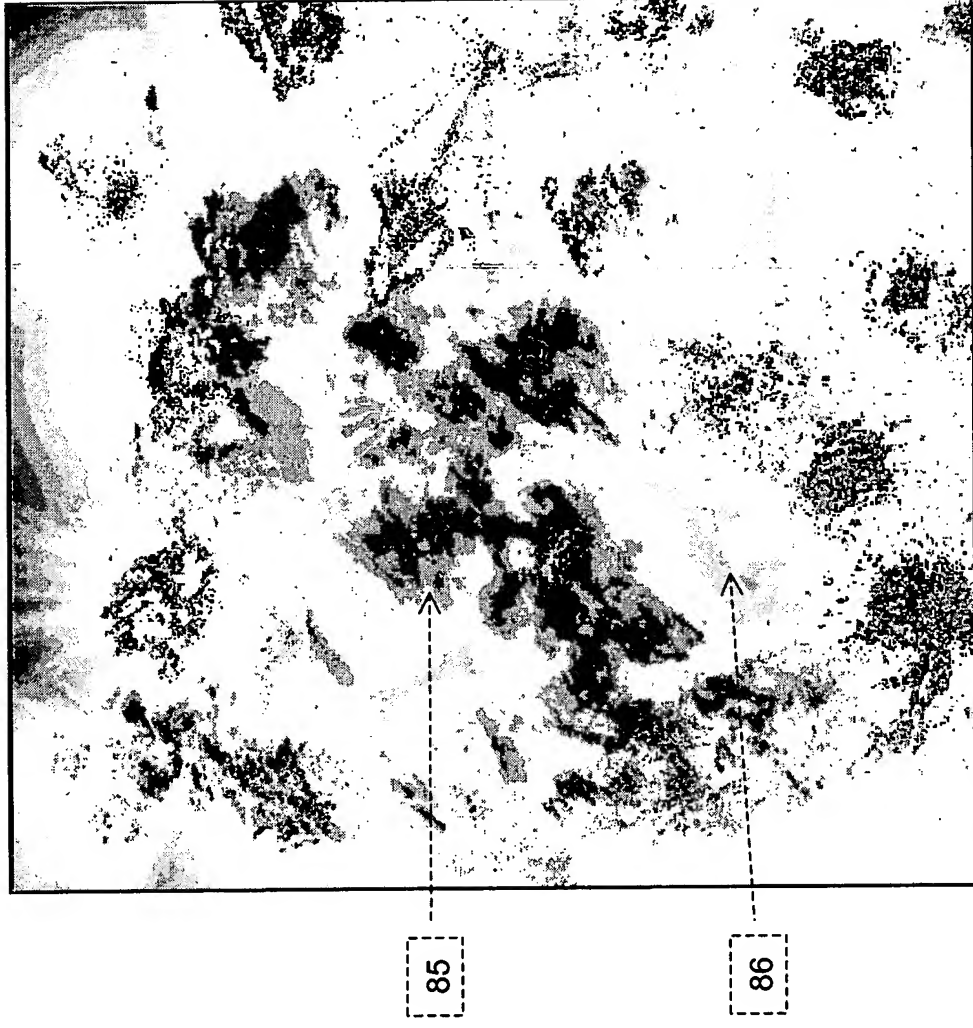
Figure 16 – Composite Reflectivity Mosaic
Product Overlaid on NW CONUS
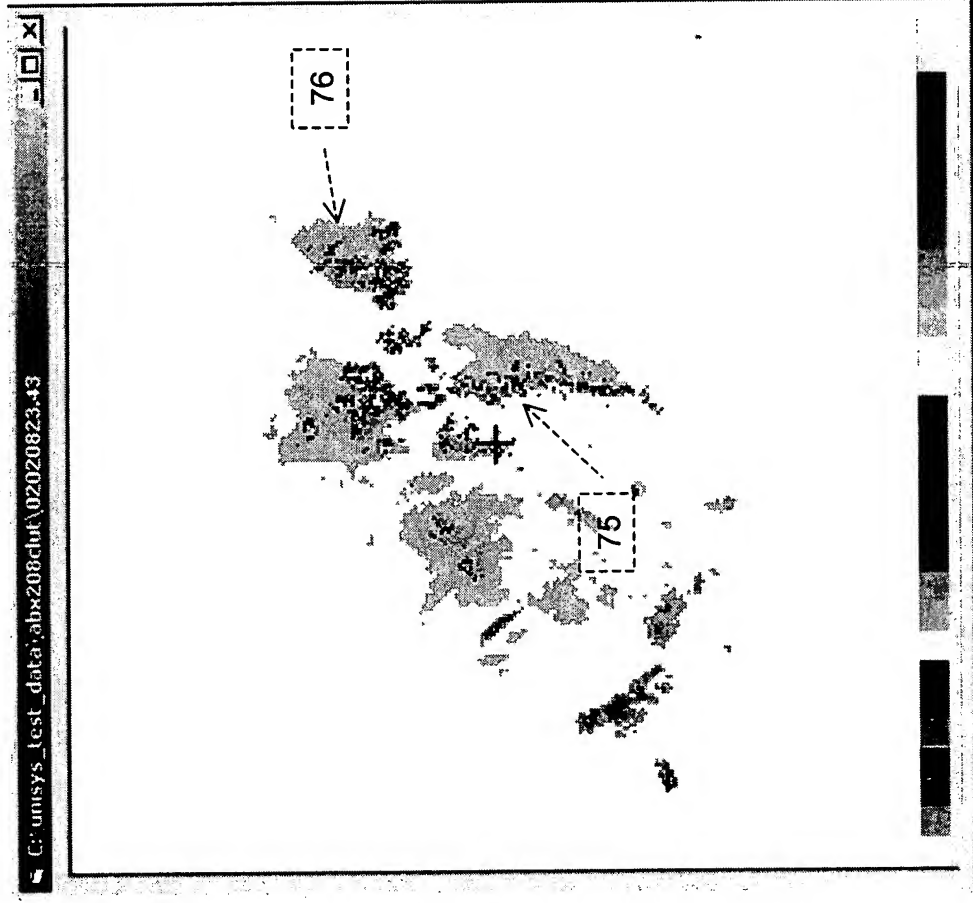Radar Coverage Map
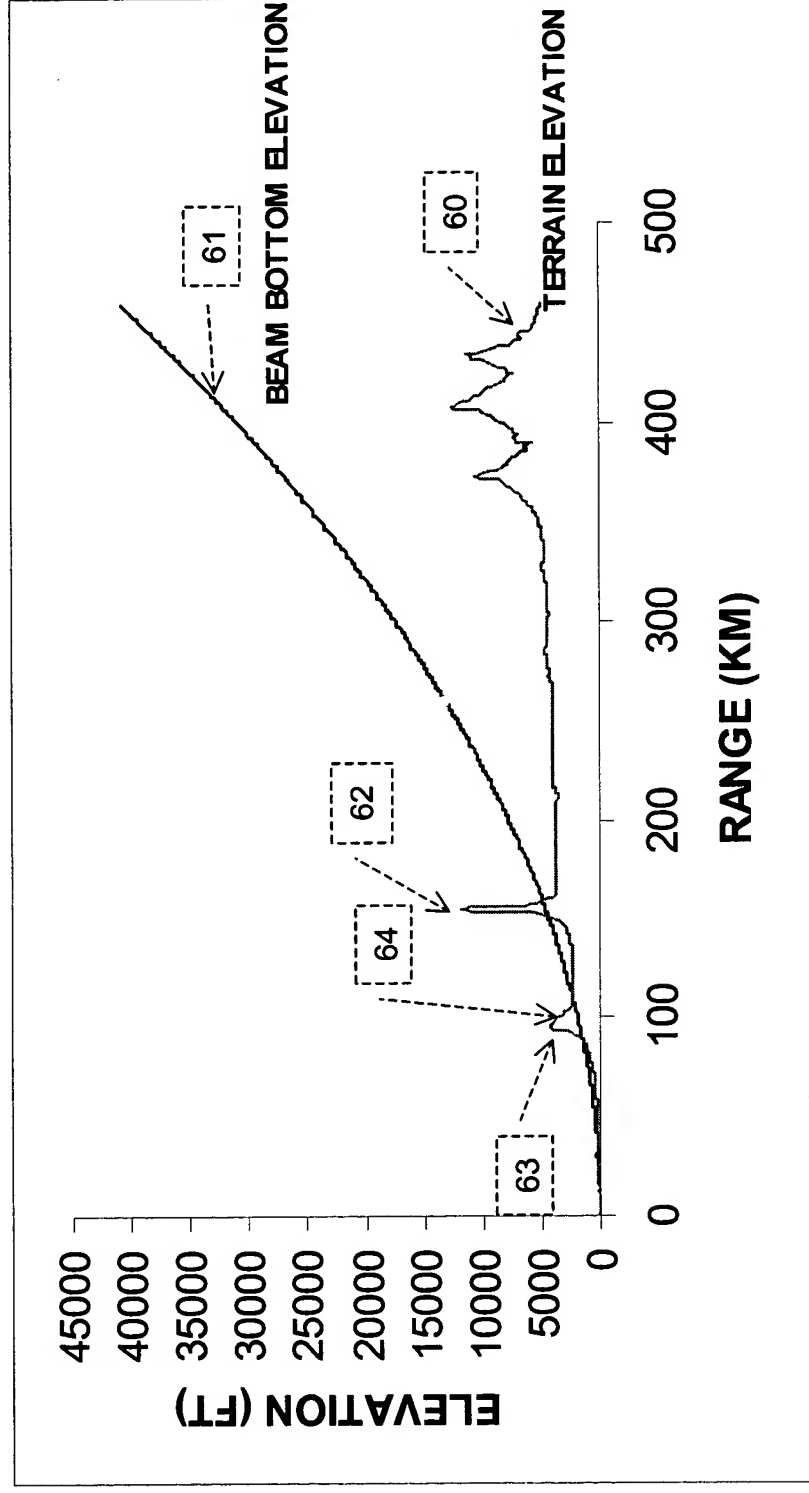
Figure 11 - Radar Clutter Region Map Model
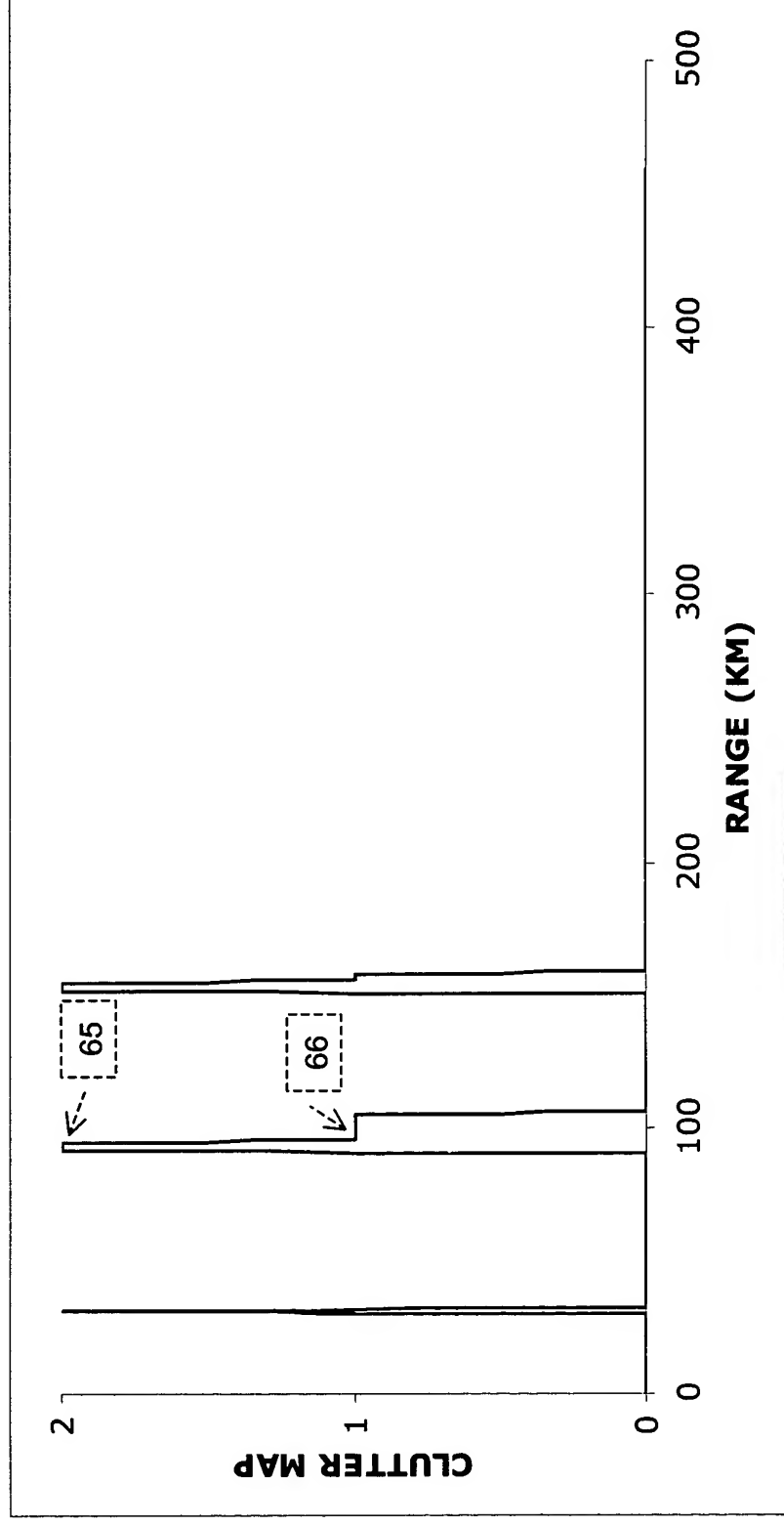
Figure 12 - Example of a Radial Clutter Profile
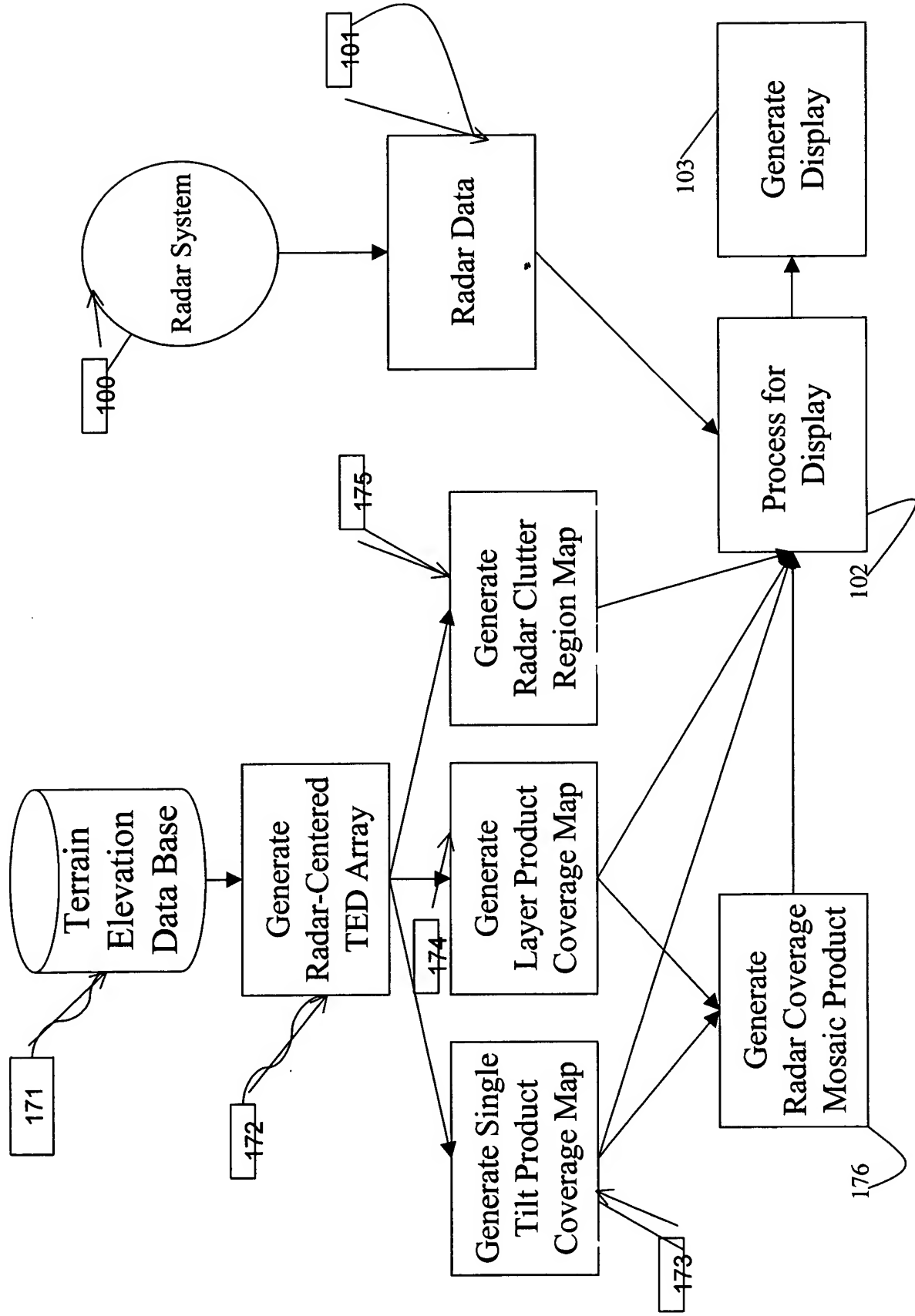
Figure 17 – Algorithmic Process Relationships
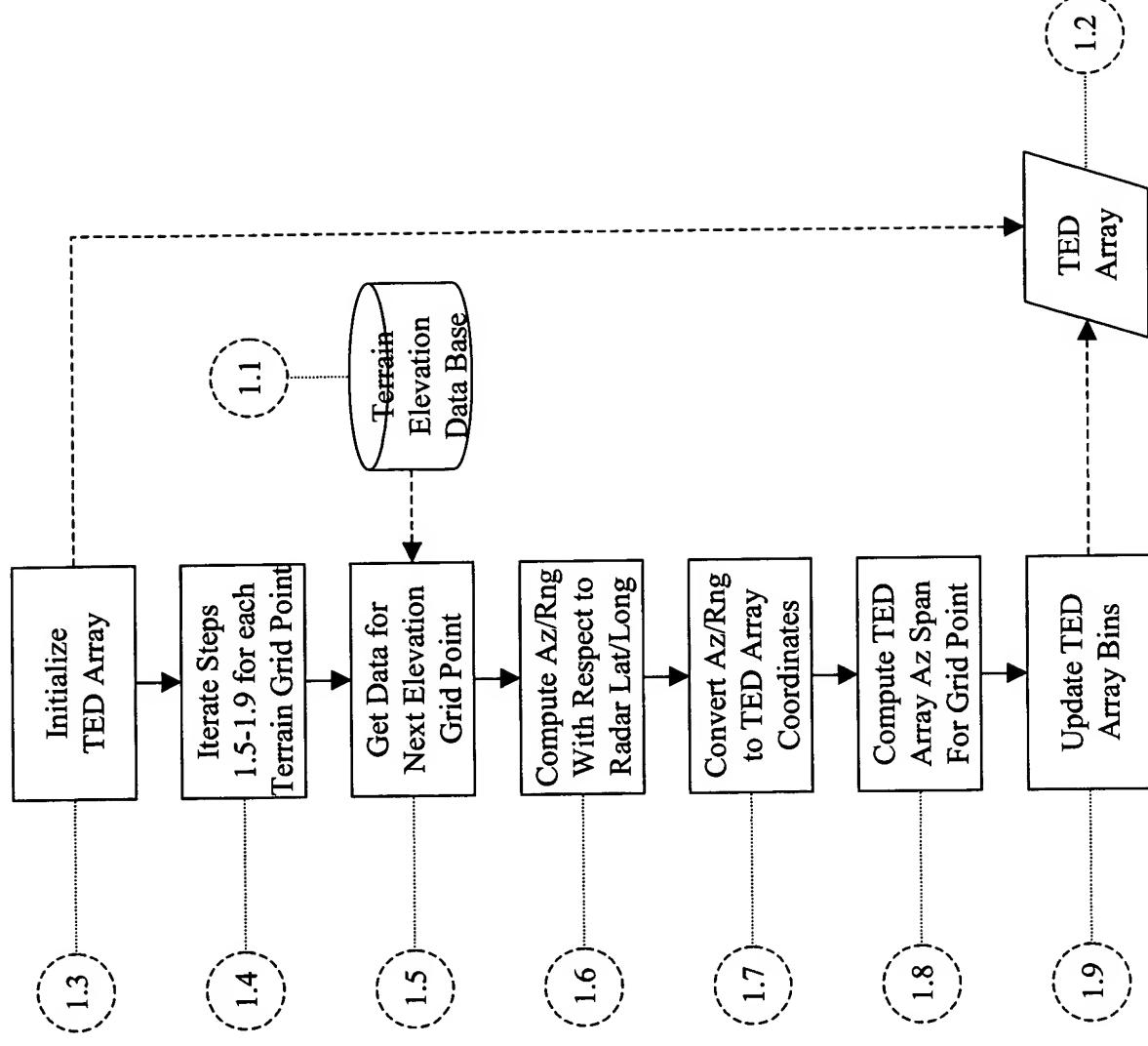
Figure 18 – Flow Diagram for Generate Maximum Terrain Elevation Data Array Algorithm

1.3 — Initialize TED Array

1.4 — Iterate Steps 1.5-1.9 for each Terrain Grid Point

1.5 — Get Data for Next Elevation Grid Point

1.6 — Compute Az/Rng With Respect to Radar Lat/Long

1.7 — Convert Az/Rng to TED Array Coordinates

1.8 — Compute TED Array Az Span For Grid Point

1.9 — Update TED Array Bins

1.1 — Terrain Elevation Data Base

1.2 — TED Array

Figure 19 – Example of Maximum Terrain
Elevation Data (TED) Array

# TED Array Aft r Grid Point Updat

**RNG Index**

|          | 52 | 53 | 54 | 55 | 56 |
|----------|----|----|-----|----|----|
| 2304     |    |    | 146 |    |    |
| 2305     |    |    | 146 |    |    |
| 2306     |    |    | 146 |    |    |
| 2307     |    |    | 133 |    |    |
| 2308     |    |    | 133 |    |    |
| 2309     |    |    | 133 |    |    |
| 2310     |    |    | 106 |    |    |

**AZ Index**

# TED Array B for Grid Point Updat

**RNG Index**

|          | 52 | 53 | 54 | 55 | 56 |
|----------|----|----|-----|----|----|
| 2304     |    |    | 146 |    |    |
| 2305     |    |    | 146 |    |    |
| 2306     |    |    | 146 |    |    |
| 2307     |    |    | 121 |    |    |
| 2308     |    |    | 120 |    |    |
| 2309     |    |    | 105 |    |    |
| 2310     |    |    | 106 |    |    |

**AZ Index**

Terrain Data Base Grid Point Spacing:    90 meters
Terrain Data Base Grid Point Value:      133 feet

Grid Point Range/Azimuth coordinates with respect to radar:
Range      = 108.673 km
Azimuth    = 23.0734 degrees

TED Array coordinates:
RNG Index  = (int) 108.673/2.0 = 54
AZ Index   = (int) 23.0734 /0.01 = 2307
AZ_SPAN    = (Roundup) (180 / $\pi$) * (0.09 / 108.673) / 0.01 = 5

# Figure 20 – Mapping of Terrain Data Base Grid Point into TED Array

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Compute Beam Edge Elevations | Iterate Steps 2.4-2.5 for each RC Az Sector | Initialize Minimum Radar View Angle | Iterate Steps 2.6-2.8 for each Range Bin | Compute Min. Viewable Elevation | Compute Radar Coverage for Bin | Update Minimum Radar View Angle | Generate Radar Product Radar Coverage Map |

TED Array

RC Array

Radar Coverage Map

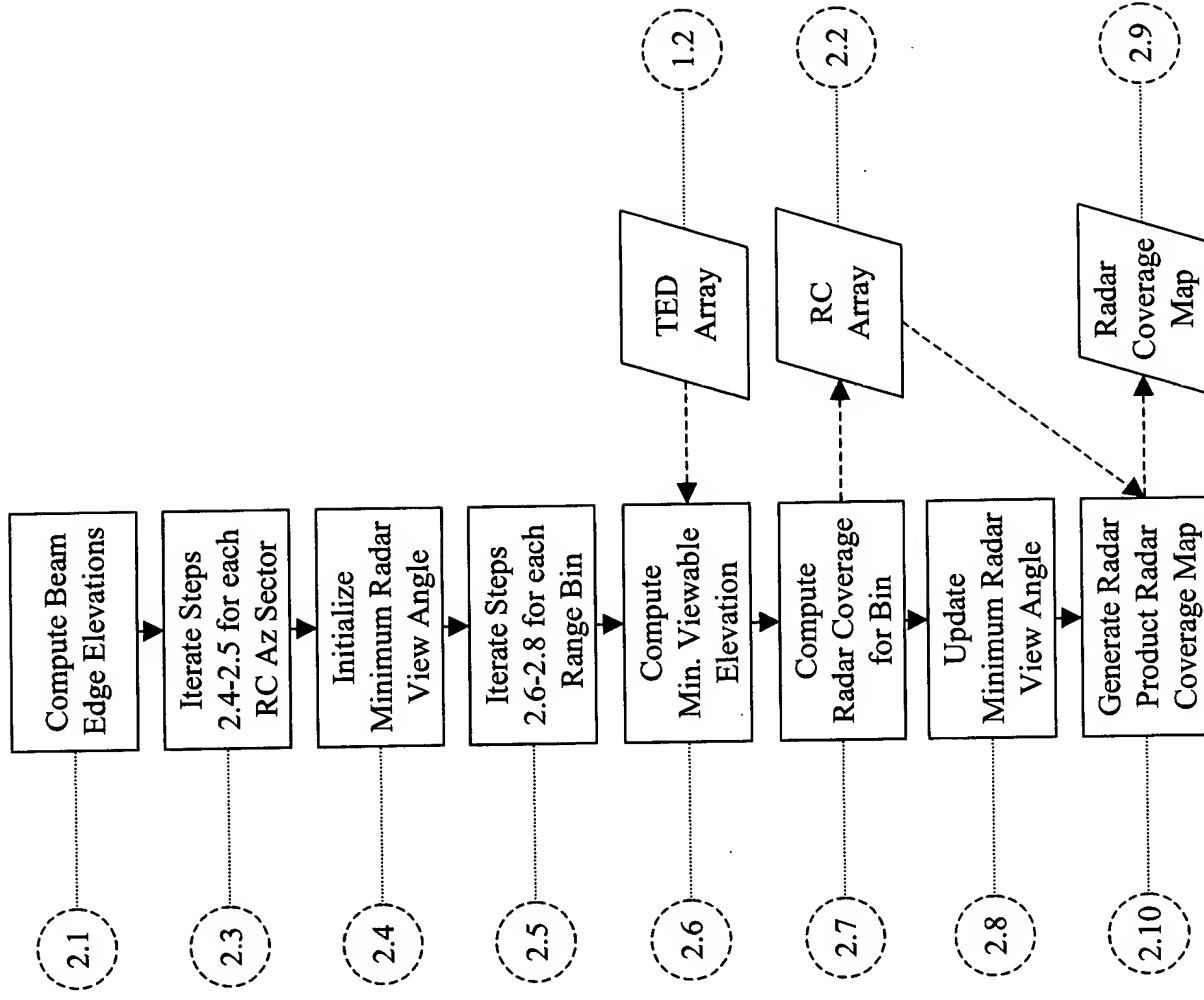(2.1) (2.3) (2.4) (2.5) (2.6) (2.7) (2.8) (2.10)

(1.2) (2.2) (2.9)

Figure 21 – Flow Diagram for Generate Radar Coverage Map for Single Tilt Radar Product Algorithm
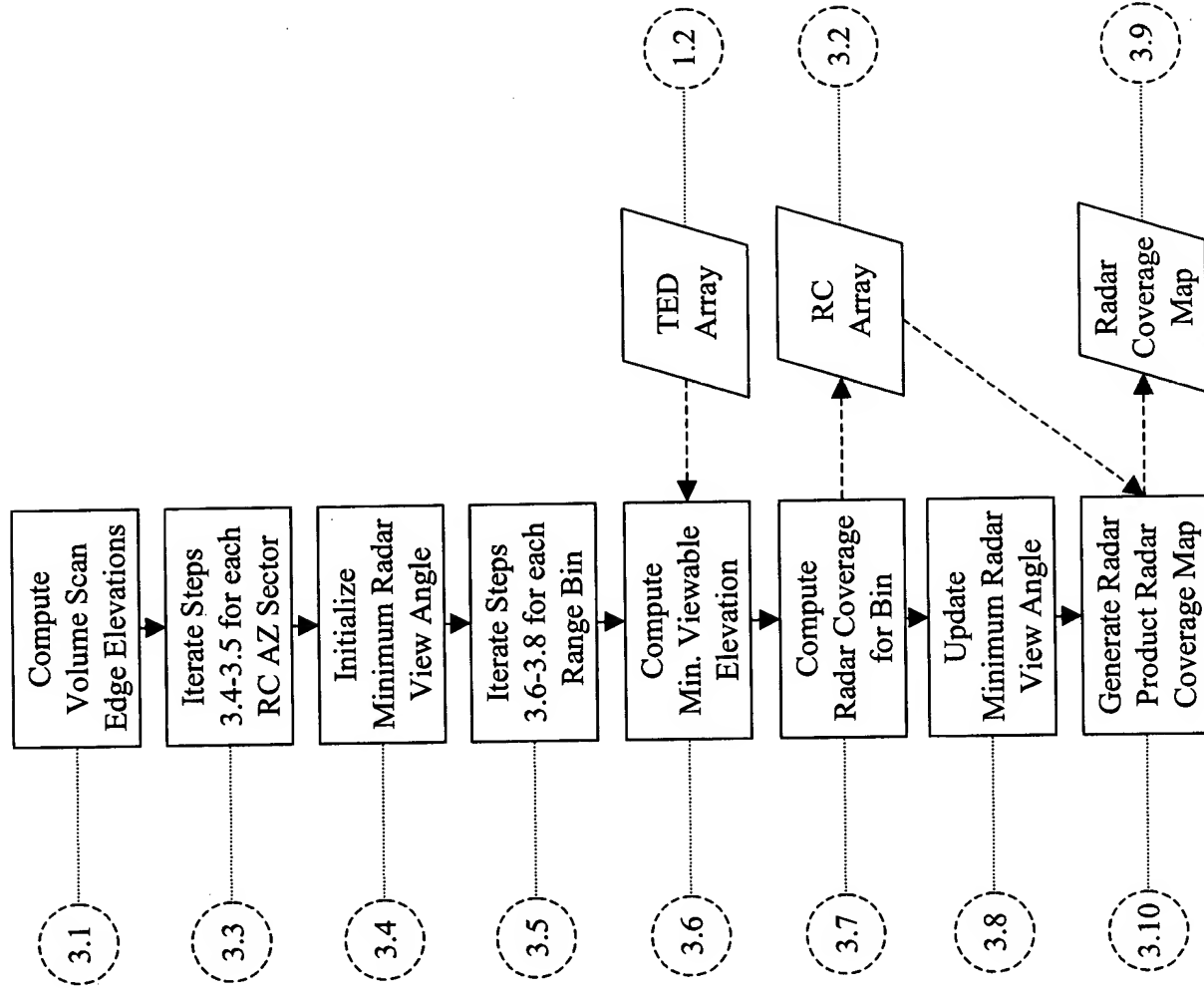
Figure 22 – Flow Diagram for Generate Radar Coverage Map for Layer Radar Product Algorithm
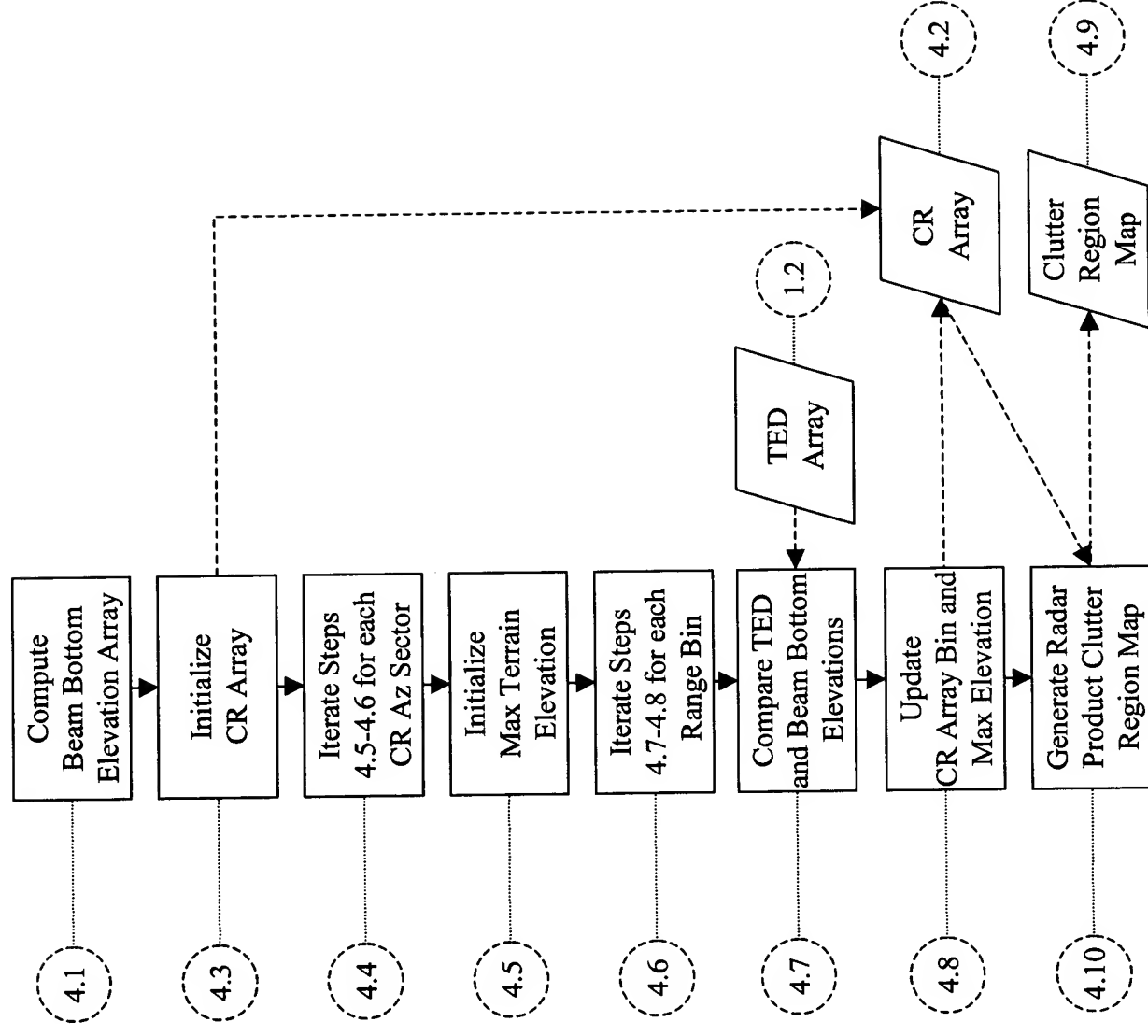
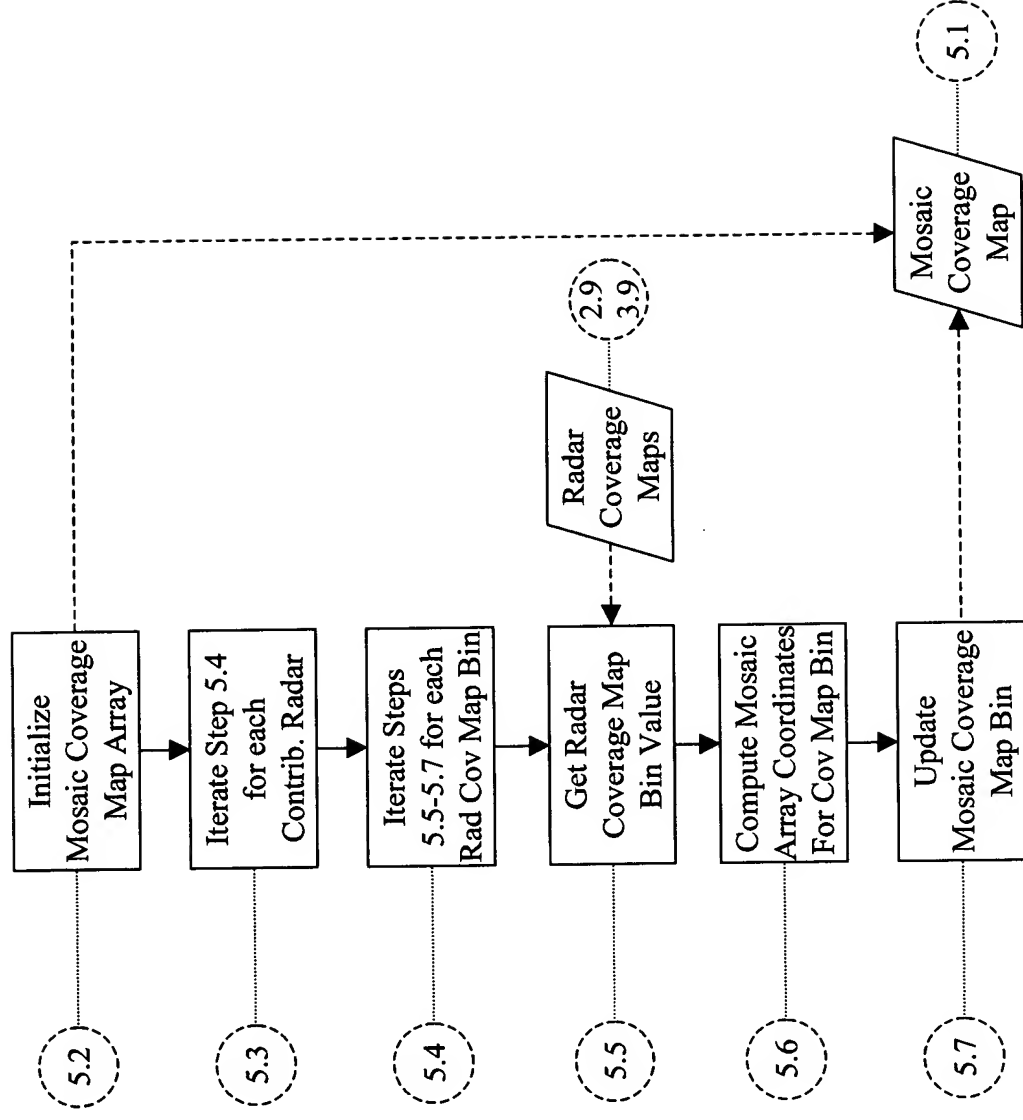Figure 23 – Flow Diagram for Generate Radar
Clutter Region Map Algorithm

Figure 24 – Flow Diagram for Generate Radar Coverage Map for Radar Mosaic Product Algorithm